

Pennant, *i.e.* the first part of the "Natural History of Selborne," freely interpolated with bracketed addenda from the originals in the British Museum, and including three or four letters of which White did not make use in preparing his book for the press. Then, pleasantly introduced by Dean Hole, and occupying more than 200 pages, come White's garden diaries from 1751 to 1771; of which a specimen, and enough to give an idea of White's personal activity as a gardener, was printed as an appendix to Bell's edition of the "Selborne" in 1877. The second volume contains the letters to Barrington, also with additions and interpolations from the originals, except in the case of the famous "monographies" of the *Hirundinidae*, which were published separately by White in the *Philosophical Transactions*; the antiquities of Selborne are also here, and at the end we find a bibliography and a useful index, which appear to be sufficiently complete. Each volume is profusely illustrated. Mr. Keulemanns' drawings of birds are familiar and welcome; we have also a large number of fancy sketches by Mr. E. Sullivan, in most of which an imaginary Gilbert White is a prominent figure. Mr. Herbert Railton's head- and tail-pieces are, for the most part, delicate and attractive. As regards the notes, Dr. Sharpe's name is, of course, a sufficient guarantee of the soundness of those on birds, and the only fault to be found with them is that they are occasionally a little wanting in succinctness and self-repression. Several of Dr. Sharpe's colleagues at the British Museum have provided him with useful notes relating to their departments of natural history, and a judicious selection has been made from the notes of previous editors, especially Bell and Harting.

From what has been said above, it will be seen that this is not really an edition of the book that White so carefully wrought into an artistic form, and that we all know and love. It is not pleasant to say it, but said it must be emphatically, that the liberties here taken with White's work have absolutely no literary justification, and have robbed it of much of that peculiar charm which, as Prof. Newton has well said in his admirable article on White in the "Dictionary of Biography," it is impossible to explain in words. What would have been White's own feelings if he had been forced to see in print the very portions of his letters which, with his own good sense and the respect of his age for publication, he had deliberately cut out, and the insertion of two hundred pages of his gardening notes between the letters to Pennant and those to Barrington? If it be argued that (as Dr. Sharpe seems to think) we learn something new about White himself by getting an idea of the original form of his letters and of the way in which he wrought his book out of them, the plain answer is that we already know all that is essential about him, and that one thing we know for certain is that he had a sense of literary form which has made his book immortal, and which should have secured for it more reverential handling than is to be found in these volumes. It might, indeed, be possibly justifiable to print the whole of the original letters as they left his hand; but not as an edition of the "Natural History of Selborne," which should always be allowed to stand exactly as his genius designed it. It will be the duty of future editors to see that none of the passages now interpolated are

allowed to creep permanently into the text of the original work.

Dr. Sharpe's enthusiasm for his author is unquestionable, as may be seen from his brief but pleasant introduction to the first volume; so, too, is the labour that he has spent on his editorial task. But the perils of the editor of a classic are great, and enthusiasm alone will not teach him how to avoid them.

OUR BOOK SHELF.

The Romance of the Heavens. By A. W. Bickerton. Pp. 284. (London: Swan Sonnenschein and Co., Ltd., 1901.) 5s.

THE theory of constructive impact, of which a popular account is given in the present book, appears to have had its origin in an attempt to explain the phenomena of new stars by the grazing collision of two dark bodies. Hitherto the theory has not been hospitably received by astronomers, and the more elaborate exposition now presented will probably meet no better fate. The truth seems to be that in spite of his claim to have discovered numerous facts not known to "ordinary" astronomers, the author lacks familiarity with spectroscopic work and astronomical methods generally. He quite condemns himself by suggesting (p. 235) that more confirmatory evidence in the case of Nova Aurigæ was only wanting because astronomers, unguided by the theory, did not make "more liberal and careful observation." As a matter of fact, the most valuable records were photographic, and are still as much in evidence as during the visibility of the Nova, and the observations certainly cannot be interpreted as indicating the presence of three bodies of the kind required by the theory. The theory thus breaks down at the outset, and it would not be difficult to show the weakness of most of the "overwhelming" astronomical evidence on which depends its extension into collisions of nebulae, clusters and cosmic systems by which it is argued that the existing forms and distribution of celestial bodies are completely explained. The merest possibilities are frequently magnified into certainties, as, for example, the occurrence of variable stars in pairs, and the preponderance of variability in double stars.

The resources of the theory appear to be unlimited. While one collision produces a new star, another results in a star cluster, another blows a planet into asteroids, and still another disperses a satellite into a ring such as that of Saturn.

We have not examined all the calculations which are given, but we may point out that the results arrived at for the separation of two stars of assumed distance and velocity (p. 58) are in each case six times too great.

The book is admirably written and is by no means without interest; but readers should be warned against mistaking the author's assertions for demonstrated truths.

Les Diastases et leurs Applications. By E. Pozzi-Escot. Pp. 218. (Paris: Masson and Co., 1900.)

THIS little volume forms one of the series of Aide-Mémoire, some of which have been previously reviewed in this journal. Its modest preface disarms criticism. "Le lecteur ne devra pas chercher ici l'exposé de théories nouvelles; nous nous sommes contenté d'exposer les faits connus, de les relier l'un à l'autre et d'en tirer chaque fois qu'il y a eu lieu des conclusions légitimes." And further, "Forcément incomplet, nous espérons que notre travail (qui n'est point fait pour des biologistes, mais bien pour une collection destinée aux ingénieurs et aux chimistes), rendra néanmoins quelques services et

facilitera la diffusion de la notion des actions diastases, dans le domaine pratique."

The author fulfils the promise of his preface in giving a clear though brief exposition of the action of enzymes or *diastases*, special attention being directed to the experimental methods employed in the study of this subject and in their application to the brewery and the distillery.

The errors in spelling are numerous, and should be revised in a subsequent edition. Schunck appears as Schmuk; Marshall Ward figures as two persons, Marshall and Word; Croft Hill's individuality is also lost as Crop and Hill; O'Sullivan loses the O' and Lindner is spelt Linter, whilst the English name Heron and the German, Geduld, are converted into the French Héron and Gédulte.

Erythrozyme is written erythrozone, racemosus is spelt racinosus, penicillium appears as penicellium and octoporus as octopodus.

An index would be a valuable addition. J. B. C.

Mongolia and the Mongols: Results of an Expedition to Mongolia in the Years 1892 and 1893. By A. Pozdnéeff. Vol. ii. 8vo. Pp. 516. Numerous photo-engravings (Russian, 1900).

THIS is the second of a series of volumes on Mongolia and its inhabitants which are being prepared by Dr. A. Pozdnéeff, and it contains the traveller's diaries during the second year of his journey, when South-eastern and Eastern Mongolia were visited. Starting from Peking, Dr. Pozdnéeff went to Kalgan—the centre and depot for Russian trade with China—and thence to Kuku-khoto, or Gui-hua-chen, the next important commercial centre of Southern Mongolia. Returning to Kalgan, he visited that portion of Mongolia which lies on the eastern slopes of the Great Khingan—namely, the towns Fen-nin-sian and Zhe-ho, or Chen-de-fu, whence he went to Dolon-nor (Lama-miao). All these places are well known long since, but, speaking currently Mongolian, Dr. Pozdnéeff has learned much more about the trade in these towns than other travellers had before him, and having, moreover, in his capacity of learned Mongolist a free access to the Lamaite monasteries, he was enabled to collect a great amount of information about the inner life of Mongolia, various questions of worship, and especially about the antiquities preserved in the monasteries. Proceeding from Dolon-nor northwards and north-westwards, towards the Kerulen River, he visited the ruins of Kai-pin-fu—the thirteenth century capital of Khubilai-khan—and obtained there full casts and photographs of an interesting inscription dating from the fourteenth century. Another very interesting Tibetan and Mongolian inscription, dating from 1626, was copied in the same way at Tsagan-suburga, on the Shara-muren River. It may now be taken that this much-controversed spot was one of the five Lao or Kidan capitals—Lin-han-fu.

The remarks of the diary on the way across the Gobi are especially interesting, in that they give the exact limits between the Gobi proper and the zone of land which lies on the western slopes of the Great Khingan. This limit corresponds with a line which may be drawn on the Russian General Staff Map through the spots where the rivers shown on this map as flowing from the Khingan end in small lakes or marshes as they enter the Gobi. M. Pozdnéeff, who crossed the Gobi in June, fully confirms the view upon this region which begins now to prevail, namely, that it is not a desert, but a dry, rolling prairie. In fact, it has the same physical aspects as the dry "rolling prairies" of Canada at the approach of the Rocky Mountains.

The volume gains very much from the excellent photo-engravings with which it is illustrated. They give a good idea of the physical characters of these portions of Mongolia. P. K.

NO. 1643, VOL. 63]

LETTERS TO THE EDITOR.

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Gothic Vestiges in Central Asia.

I AM in thorough accord with the main principles indicated in Dr. A. C. Haddon's communication, which appeared in NATURE, vol. lxiii. p. 309 (January 24), more especially as to the eastern extension of a fair dolichocephalic race or races, at least as far east as the north-western frontiers of China. It has, however, always struck me, as a student of the ethnology of these districts, that sufficient attention has not been given to the geographical changes that have certainly occurred throughout the whole of Central Asia, and without which it appears impossible to understand such writers as Herodotus, Arrian and Ammianus Marcellinus. I claim no new discovery in suggesting, with Colonel Tchaikofsky (quoted by Schuyler, vol. i. p. 53), that during the Classical period the rivers Chu and Sary-su, instead of losing their waters in desert lakes, united at Perovsky with the Jaxartes, and flowed along the deserted bed, now known as the Jany Darya, joining finally the old Oxus and making their way along what is still known as the "Ancient Bed" of the Amu Darya to the Caspian. We thus arrive at a satisfactory explanation of the crossing of the "Araxes" by Cyrus, and his description of the homeland of the Massagetae, whom we are then justified in associating ethnologically with the Getae or Goths of other authors. This would throw light also on the position of Arrian's Alexandria Eschate, which I would identify with the modern Jizakh. This was situated on the Tanais, which seems to have been an overflow channel of the upper Jaxartes, leaving the main river at the bend below Khojend and flowing past Jizakh into the Taz Khane, whence it found its way into the Jany Darya.

We thus also get a satisfactory position for the Issedones, also a Gothic tribe ("West-Saetons"), east of whom were the Asii, Asiani or Pasiani, the Wusuns of the Chinese, who are described as "having blue (or green¹) eyes, red beards and monkey-like faces"—alluding to their faces covered with tawny hair.

When, however, Dr. Haddon comes to his Chinese authorities several inaccuracies appear in his account. As Dr. Haddon himself is, apparently, not a student of that language, he has naturally been dependent on others, and the second-hand information with which he has been supplied is in the last degree misleading. He speaks, for instance, of the "Ssé or Sek (who are identified with the Sacae)." I have a fair first-hand acquaintance with the older Chinese writers, and find myself unable to place these tribes. There were, at the period of which he speaks, Shuks, or rather Pa-shuks, in Szechwen; but there is no reason to connect them with any external tribe, nor have we a suggestion that they have ever migrated. There was a country—not a people—called Su-li, but the phonetic element here is Sulak, and we must identify the district with the Surak of the Bundahish, the country about the lower Jaxartes. The later writers, it is true, talk of a kingdom—not a people—called by Matwanlin Sse; but it is, apparently, the modern Sarakhs. The classical Sacae, Scyths and Dahae seem to be variations of the one word, and may be connected with the Tochari of Strabo the Tahia of the Chinese. I am, however, doubtful of Scyth or Sacae being used by the Greeks in any sense as an ethnographic term; rather it applies to their stage of civilisation. We learn very little of these Tokhars from Chinese sources, but from Strabo we gather that they, in conjunction with the Wusuns and the Sakarauli (possibly the inhabitants of the Sarik-kol Pamir), bore down on Bactria and put an end to the Greek line of kings. About the same time the Yueh-ti, driven from their homes by the Hiung Nu (Turks), arrived in the country, and the two peoples seem to have more or less coalesced, and we find them a few years later living in apparent harmony, but occupying each its own side of the Oxus, the Yueh-ti apparently being the predominant race, or at least supplying the royal race. This is very different from the account given by his supposed authorities to Dr. Haddon. I have had the misfortune to have met with M. Drouin before, but now become acquainted with

¹ T'sing, the word used, means the colour of deep, pure water—grey, blue or green.